APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/090,489	03/04/2002	Ranjit S. Oberoi	5681-14000	5065

7590	04/08/2004	EXAMINER

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ART UNIT	PAPER NUMBER
2672	7

DATE MAILED: 04/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

DETAILED ACTION

Amended Claims

1.   Claims 1-12 were pending in the original application filed on March 04, 2002 prior
to the present amendment received on Jan 23, 2004.

2.   In the present amendment, claims 1 and 4 have been amended and claims 13-16
have been added. Therefore, claims 1-16 are currently pending after the amendment.

3.   Claims 1 and 4 have been amended in order to correct grammatical errors
without addition of new matter.

4.   Claims 13-16 contain new limitations, and thus new prior art rejections are
applied as necessary.

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that
form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed
> publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6.   Claims 1, 5, 7, 9 and 15-16 are rejected under 35 U.S.C. 102(a) as being
anticipated by Brunner et al., U.S. Patent No. 6,369,830. The rejections of claims 1, 5,
7, and 9 are set forth in prior Office Action, Paper No. 5., Paragraph 3.

7.   In regards to new claim 15, the same basis and rationale for claim rejection as
applied to claim 1 are applied. Brunner et al. discloses rendering a plurality of
overlapping layers, and each layer corresponds to a single image (FIG. 2; FIG. 3; and
Col. 4, lines 44-59).

8.   In regards to new claim 16, the same basis and rationale for claim rejection as

applied to claims 1 and 7 are applied. Brunner et al. discloses all limitations of claim 7

(a), (b), (c) and (d). In addition, FIG. 6 clearly shows repeatedly performing all

limitations of said claim 7 (a), (b), (c) and (d).

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

10.   The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

11.   Claims 2, 6, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Brunner et al., U.S. Patent No. 6,369,830 in view of the on-line publication entitled,

"Advanced Graphics Programming Techniques Using Open GL" by McReynolds et al.

This rejection is set forth in prior Office Action, Paper No. 5., Paragraph 6.

12.   Claims 3-4, 10-11 and 13 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Brunner et al. in view of Tang et al., U.S. Patent Publication No.

2003/0160789. The rejections of claims 3-4 and 10-11 are set forth in prior Office

Action, Paper No. 5., Paragraph 7.

13.   In regards to new claim 13, the same basis and rational for claim rejection as

applied to claims 4 and 11 in the previous office action are applied. Tang et al. clearly

recites that *the texture buffer comprises one or more synchronous dynamic RAMs*

(SDRAMs) (Paragraph [0106]) as applied to claim 4 in the previous office action.

14.   Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brunner

et al. in view of Tang et al. as applied to claim 11 above, and further in view of Marino,

U.S. Patent Publication No. 2003/0137523. This rejection is set forth in prior Office

Action, Paper No. 5., Paragraph 8.

15.   Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brunner

et al. in view of Tang et al. as applied to claim 11 above, and further in view of Baker.

16.   In regards to claim 14, Brunner et al. and Tang et al. do not explicitly disclose the

limitation of *the frame buffer comprises one or more 3D-RAM memory devices*, but

Baker discloses the said limitation (Page 7, Section 3.3.4: Other Products).

17.   It would have been obvious to one of ordinary skill in the art to take the teachings

of Brunner et al. and Tang et al. and to add from Baker the 3D-RAM frame buffer

memory architecture in order to improve 3-D rendering performance. The 3-D RAM

frame buffer memory architecture is optimized for high-performance 3D graphics that

provides approximately 3-4 fold increase in rendering performance by increasing the

data transfer rate by integrating key functions on-chip, including arithmetic logic unit to

accelerate Z-buffer rendering and on-chip caches. Thus, the 3-D RAM frame buffer will

increase the rendering performance when blending 3-D images.

Response to Argument

18.   The applicant argues that claim 1 is allowable because Brunner et al. (U.S.

Patent No., 6,369,830) teaches away from the teachings of applicant's recitation of

claim 1. Specifically, on page 5 of the applicant's amendment, the applicant states the

following:

Brunner et al. (hereinafter referred to simply as "Brunner") discloses a system

and method of rendering translucent layers. Figure 6 describes a process of

mixing the color of pixels corresponding to a single pixel position. (Col. 5, lines

40-43) (Col. 5, lines 60-65) At Col. 6, lines 12-13, Brunner teaches that "The steps

of FIG. 6 may be repeated for each pixel in the image as needed. Pixel may be

processed in any order." Thus, according to the methodology of Brunner, layer

merging is the inner loop and pixel position movement is the outer loop.

In contrast, claim 1 recites:

"A system comprising: an accumulation buffer; an image buffer; and a mixing

unit configured to read a first stream of image pixels from the image buffer, read

a second stream of pixels from the accumulation buffer, blend each image pixel

with corresponding accumulation buffer pixel based on an alpha value provided

with the image pixel, and thus, generate a third stream of output pixels, wherein

the third stream of output pixels are transferred to the accumulation buffer."

This union of features is not taught or suggested in ay of the cited references. In

particular, claim 1 recites the blending of (a) a first stream of image pixels

obtained from the image buffer and (b) a second stream of pixels read from the

accumulation buffer. Brunner teaches away from this recitation because Brunner

requires the merging of layers as the inner processing loop as evidence above.

Thus, claim 1 and its dependents are patentably distinguished over the cited

references at least for the reasons given above. Claim 7 and 11 recite features

similar to claim 1. Thus, claim 7 and 11, and their respective dependents, are

patentable distinguished over the cited references based on similar reasoning.

19.   The examiner maintains the original rejections of the previous office action.

Brunner et al. does not teach away from applicant's recitation of claim 1. FIG. 1 of

Brunner et al. clearly recites a plurality of layer data (No. 103) of any shape or size

having data structures for storing color (RBG) values (No. 106), alpha values (No. 107),

and fade values (No. 108). No. 108). Thus, the layer data to be composited for display

is stored or held in a buffer or memory storage. The stored layer data is read into the

system (No. 100) and specifically into the graphics processor (No. 101), wherein the

accumulator (No. 102) resides. FIG. 2 of Brunner et al. also clearly represents a

plurality of layer data being read into said system. The layer data is the first stream of

pixel data of claim 1. Once the layer data is read into the system, layer data merging is

executed as disclosed in FIG. 6 of Brunner et al. The layers are blended together at

each pixel position until all layers have been blended together. The first layer is read

into the graphics processor and merged or blended together with the data read from the

accumulation buffer, and the resulting output data is stored in the accumulation buffer.

Then, the next layer is read into the graphics processor and merged or blended with the

stored data read from the accumulation buffer. The process continues until all layers are

blended together and the output image reaches full opacity. Thus, Brunner et al. clearly

teaches all limitations of applicant's recited claim 1.

20.   In addition, Brunner et al. clearly teaches (Col. 4, lines 44-49 and Col. 5, lines 24-

34) performing steps of FIG. 6 for a number of pixels concurrently in parallel using a

plurality of accumulators. Thus, the applicant's argument regarding the inner loop and

outer loop of FIG. 6 of Brunner et al. is not valid. Brunner et al. clearly teaches the union

of features recited by the applicant in claim 1.

21.   Thus, claim 1 and its dependents are rejected in view of the cited references for

the reasons given above. Claim 7 and 11 recite features similar to claim 1. Thus, claim

7 and 11, and their respective dependents, are also rejected in view of the cited

references based on similar reasoning.

22.   Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hwa C Lee whose telephone number is 703-305-8987. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on 703-3900. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-9700.
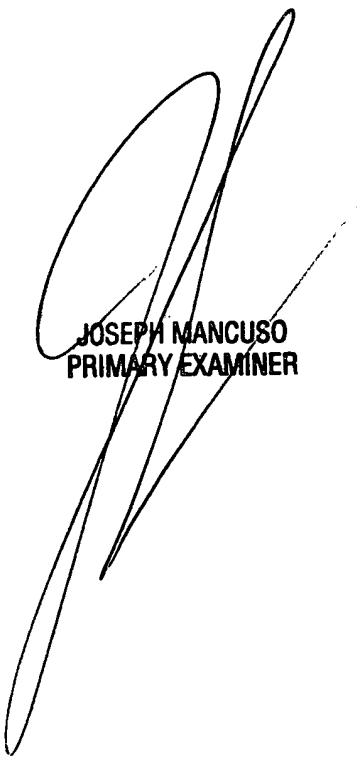
Hwa C Lee

Examiner
Art Unit 2672

HCL
03/22/04

JOSEPH MANCUSO
PRIMARY EXAMINER